



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

| APPLICATION NO.       | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------------|-------------|----------------------|---------------------|------------------|
| 10/775,456            | 02/10/2004  | Lutz Melchior        | 075791.0234         | 1340             |
| 5073                  | 7590        | 10/06/2006           | EXAMINER            |                  |
| BAKER BOTTS L.L.P.    |             |                      | LEE, DAVID J        |                  |
| 2001 ROSS AVENUE      |             |                      | ART UNIT            |                  |
| SUITE 600             |             |                      | PAPER NUMBER        |                  |
| DALLAS, TX 75201-2980 |             |                      | 2613                |                  |

DATE MAILED: 10/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

st

|                              |                        |  |                     |  |
|------------------------------|------------------------|--|---------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b> |  | <b>Applicant(s)</b> |  |
|                              | 10/775,456             |  | MELCHIOR ET AL.     |  |
|                              | <b>Examiner</b>        |  | <b>Art Unit</b>     |  |
|                              | David Lee              |  | 2613                |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 10 February 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>3/4/04</u> .  | 6) <input type="checkbox"/> Other: _____                          |

**DETAILED ACTION**

***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 2 and 13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 2, which is dependent on claim 1, recites the limitation, in part, “a wavelength-selective filter.” It is not clear as to whether this is referring to the wavelength-selective filter of claim 1 or a second wavelength-selective filter. For purposes of examination and as gleaned from the specification, the “wavelength-selective filter” of claim 2 will be understood as the same “wavelength-selective filter” of claim 1. Appropriate correction is required.

Claim 13 recites the limitation, in part, “arranged on a TO base plate.” The term “TO” is not described in the specification and therefore does not point out and distinctly claim the subject matter which applicant regards as the invention.

***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this

Art Unit: 2613

subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 4, 6, 9, 11-16 are rejected under 35 U.S.C. 102(e) as being anticipated by Tatum et al. (US Patent No. 7,088,518; hereinafter referred to as "Tatum").

Regarding claim 1, Tatum teaches an electro-optical module for transmitting or receiving optical signals of at least two optical data channels (Figs. 1 or 2), comprising: an optical waveguide formed in the module as a single waveguide piece with a bevelled end face (34 of Fig. 2; note that the word "bevelled" is understood as "a surface that does not form a right angle with adjacent surfaces"; the end face of the fiber connected to module 13 is understood as "bevelled" in that it does not form a right angle to its adjacent surfaces) that has a wavelength-selective filter associated therewith (18 of Fig. 1 or 25 of Fig. 2; see also col. 2, line 39-44 and col. 1, lines 54-60); a transmission component emitting light that is coupled into the optical waveguide (see Fig. 2: transmission component 31 emits light which is passed through the filter/reflector 25 and coupled into the optical waveguide 34; see also col. 2, lines 50-52); a reception component that receives light coupled out from the optical waveguide (see Fig. 2: reception component 29 receives light coupled out from waveguide 34), wherein light of one data channel travels in the optical waveguide and is reflected at the wavelength-selective filter and couples out to the reception component at an angle to an optical axis of the waveguide piece (see Fig. 2: light entering the module via waveguide 34 is reflected at the filter 25 and coupled to reception component 29; note that the light is at an angle to an optical axis of the waveguide piece; see also col. 2, lines 44-59), wherein light of the other data channel from the transmission component passes through the wavelength-selective filter and enters the bevelled end face (see Fig. 2: light from transmission component 31 is passes through the filter and enters the bevelled

Art Unit: 2613

end face of waveguide 34; see also col. 2, lines 44-59), and wherein a free beam region is formed between the bevelled end face and the transmission component and the reception component, respectively (see Fig. 2: note that the light within the module between the end face and transmission/reception components are in free space).

Regarding claim 4, Tatum teaches that the optical axes of the transmission and reception components run at an angle of other than 90 degrees relative to one another (see Fig. 2: the axes are parallel to each other).

Regarding claim 6, Tatum teaches that the transmission component and the reception component are fastened on a common module housing and are positioned thereon at a defined angle to one another (see Fig. 2: note that transmission and reception components 31 and 29 are fastened to module 20).

Regarding claim 9, Tatum teaches that the waveguide piece is preassembled on an insertion part that is configured for insertion into the module housing (see Fig. 2: note that waveguide 34 is assembled on receptacle 33, which is inserted into module housing 20).

Regarding claim 11, Tatum teaches that the insertion part comprises a flange via which the insertion part and the waveguide piece are fastened in a defined arrangement in the module housing (see Fig. 2: the receptacle 33 is understood as a “flange” in that it serves as a collar to the waveguide 34).

Regarding claim 12, Tatum teaches that the waveguide piece is positioned in the module housing in such a way that light emitted by the transmission component is focused onto the end face of the waveguide piece (see Fig. 2: the waveguide 34 is positioned in the module so that light from transmission component 31 is focused into the fiber).

Regarding claim 13, as it is best understood in view of the 112 rejection above, Tatum teaches that the transmission or reception component is respectively arranged on a TO base plate that is inserted into corresponding holding regions of the module housing (see Fig. 2: the holding area of transmission component 31 is understood as a "TO base plate"; see also col. 2, lines 3-5).

Regarding claim 14, Tatum teaches a lens provided in the free beam region between the end face of the waveguide piece and the transmission component or the reception component, respectively (lens 23 of Fig. 2; see also col. 2, line 12).

Regarding claim 15, Tatum teaches that the lens is integrated into the transmission component or the reception component (see col. 2, lines 12-14).

Regarding claim 16, Tatum teaches that the waveguide piece projects in a defined fashion from the module housing at its end opposite the bevelled end face (see Fig. 2: the light is projected through waveguide 34).

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tatum in view of Kunikane et al. (US Patent No. 5,479,547; hereinafter referred to as "Kunikane").

Regarding claim 2, as it is best understood in view of the 112 rejection above, Tatum teaches that the optical waveguide is associated with a wavelength selective filter (see Fig. 2:

Art Unit: 2613

signals are transmitted from the waveguide 34 to the filter 25 and vice versa), but does not expressly disclose that the filter is “coated” on the optical waveguide. It is parenthetically noted that in view of the instant specification and the drawings, the term “coated” is understood as “integrated” or “arranged on.” It is well known in the art to integrate a filter onto the end face of an optical waveguide. For example, Kunikane, from a similar field of endeavor, teaches an electro-optical transmission module (Fig. 1) comprising an optical waveguide (21 of Fig. 1) associated with a wavelength selective filter (26 of Fig. 1), wherein the end face of the optical waveguide is “coated” with the wavelength-selective filter (see Fig. 1: note that the filter is integrated on the end face of the waveguide; see also col. 4, lines 41-54). It would have been obvious to a skilled artisan at the time of invention to integrate the wavelength selective filter on the optical waveguide, as taught by Kunikane, in order increase space.

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tatum.

Regarding claim 3, Tatum teaches the limitations of claim 1 but does not expressly disclose that the angle of the optical waveguide end face to the optical axis of the waveguide piece is substantially 60 degrees. Absent any teaching of criticality, it would have been a matter of design choice, or given the general environment of the prior art, it would have been obvious to obtain an optimal or a customer-requested angle by routine experimentation. Therefore, a 60-degree angle of the optical waveguide end face to the optical axis of the waveguide piece would have been attainable for one skilled in the art.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tatum in view of Applicant's admitted prior art.

Regarding claim 5, Tatum teaches that the waveguide piece comprises a ferrule in which the optical waveguide is located and which is transparent to light of the wavelengths used (see col. 2, lines 60-65). Although Tatum teaches that the ferrule can be made from metal, plastic, or ceramic, Tatum does not expressly disclose that the ferrule can be made out of glass. Tatum does disclose, however, that other kinds of ferrules may be implemented for physically connecting other types of components to the structure (see col. 3, lines 1-3). Glass ferrules are waveguide structures well known in the art. Applicant's prior art discloses that using glass for waveguide structures and elements is well known (see pg. 2, lines 8-11, instant specification). It would have been obvious to a skilled artisan at the time of invention to use glass to construct waveguide structures such as ferrules in order to decrease construction costs and promote a secure medium for the transmission system.

Claims 7, 8, and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tatum in view of Scobey et al. (US Patent No. 5,859,717; hereinafter referred to as "Scobey").

Regarding claims 7, 8, and 10, Tatum teaches the limitations of the claimed invention but does not expressly disclose that the various components are arranged in a hermetically tight fashion. However, it is well known in the art to manufacture and configure components in an airtight and hermetical fashion within the housing in order to avoid problems associated with moisture, dust, etc. Scobey, from a similar field of endeavor, teaches an electro-optical transmission module wherein the housing is sealed in a hermetically tight fashion (see Fig. 3 and



Art Unit: 2613

col. 3, lines 64-67). It would have been obvious to a skilled artisan at the time of invention to arrange the components in a hermetically tight fashion in order to reduce pressure levels and to avoid problems associated with dust and moisture.

Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tatum in view of Eide et al. (US Patent No. 5,031,984; hereinafter referred to as "Eide").

Regarding claim 17, Tatum teaches the limitations of claim 1 but does not expressly disclose that the optical waveguide comprises a single-mode fiber. However, single mode fibers are notoriously well known and widely used throughout the art of optical transmission systems. Eide, from a similar field of endeavor, teaches an electro-optical module which uses a single mode fiber for optical transmission (col. 5, lines 51-55). It would have been obvious to a skilled artisan at the time of invention to use a single mode fiber in order to avoid modal dispersion associated with multimode fibers.

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to David Lee whose telephone number is (571) 272-2220. The examiner can normally be reached on Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kenneth Vanderpuye can be reached on (571) 272-3078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2613

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

David Lee  
Patent Examiner



**KENNETH VANDERPUYE**  
**SUPERVISORY PATENT EXAMINER**